

PIERSON (A.L.)

Medical dissertation
on the diagnosis & treatment
of pertussis or Chin-Cough

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Dr Duglison,

MEDICAL DISSERTATION

*from
Harvard M.*

ON

The Diagnosis and Treatment

OF

PERTUSSIS OR CHIN-COUGH,

WHICH OBTAINED

THE BOYLSTON PREMIUM FOR 1822.

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TO

JAMES JACKSON, M. D.

PROFESSOR OF THEORY AND PRACTICE OF PHYSIC

In Harvard University:

AS A SLIGHT TRIBUTE OF RESPECT AND GRATITUDE FOR HIS PROFESSIONAL INSTRUCTIONS, AND FOR HIS UNVARYING KINDNESS AND FRIENDSHIP, THIS ESSAY IS
AFFECTIONATELY INSCRIBED BY

THE AUTHOR.

SALEM, FEB. 1824.

ON PERTUSSIS.

THE name Pertussis, made use of by Sydenham, and adopted by Cullen, appears to be better chosen than that of Tussis Convulsiva, Tussis Spasmodica, &c. used by Burserius, and by Willis and other Latin writers. For although the name cannot alter the nature of a disease, it may be made to convey false impressions concerning it. In our own language the name Whooping Cough, and *Kink* or Chin Cough, seem properly enough chosen, from the leading symptoms of the cough, its *peculiar sound*, and its *disposition to recur* in paroxysms, or *kinks*. The French name, Coqueluche, seems appropriate for a like reason. Dr. Good derives the name Chin Cough from the Saxon or German *kind*, “a child.” Nosology—Class ii. Ord. ii. Gen. i. Sp. 3.

The state of the air most favourable to the appearance of Pertussis, is that of *humidity*, and a *variable temperature*. Hence it arises that it more frequently appears at the commencement of Autumn and of Spring, in moist climates and upon the sea-board.

It is common to refer the origin of Epidemic disorders to atmospheric miasmata, and it is evident, that if any disease has a right to claim such an origin, it is this; since when it makes its appearance, many persons are attacked at the same time, and without communication with each other. The question of its absolute contagiousness is still involved in some doubts, although the most numerous probabilities lie on the affirmative side.

The seat of the disease is in the mucous membrane lining the trachea, bronchiæ and air cells. There have not, however, been wanting, those, who have referred the seat of the disease to other parts, particularly the stomach and bowels. And it must be acknowledged, from the quantity of glairy mucus furnished by the stomach, that this organ participates in the disease.—From the nature of the disease, very little light has been thrown on the subject by dissections, since the fatal cases have almost always been complicated with other diseases, as bronchitis, pneumonia, &c., the appearances of which have obscured those of the specifick disease.

The first stage of the disease is that in which the specifick cause remains latent, corresponding to the first stage, or *period of incubation* in the exanthemata; it *lasts from one to three weeks*, and cannot, in all cases, be distinguished from the symptoms of a common cold, or catarrh. The best diagnosis between the two, may be formed, by observing that *Pertussis attacks but once during life,—that the cough is more dry*, and that there

is less watering of the eyes and running at the nose, and *less of febrile excitement*, than in catarrh. The prevalence of Pertussis as an epidemick, would also bring suspicion upon symptoms, which might otherwise pass unnoticed. It is rare that physicians have an opportunity to decide upon the complaint in its first stage, but, admitting the contagious nature of the disease, the diagnosis may, for very obvious reasons, become a point of the highest importance.

The second stage of Pertussis is clearly shown by the peculiar nature of the cough.—This consists in a succession of very rapid and forcible expirations, succeeded by a long and sonorous inspiration, after which the expiratory efforts again commence, and the sonorous inspiration, or whoop again follows; this succession is repeated till a quantity of mucus is thrown from the lungs, or the contents of the stomach are ejected, either of which generally puts an end to the paroxysm. During the expiratory efforts, the blood is forced to the head with great violence, the lips and eye-lids swell, and the whole face is purple and turgid, and a hæmorrhage not unfrequently takes place from the nose and mouth. Dizziness and vertigo are produced by the same cause; and the patient, being conscious of this, immediately, upon perceiving the access of a paroxysm, seeks the support of the first object within his reach, to which he clings till the fit is over.—Although instances of asphyxia and suffocation do, *very rarely*, occur from the violence of the concussion of these paroxysms, yet, in general, it is astonishing to

perceive, how instantaneously, after the paroxysm is finished, the little patient returns, with undiminished spirits, to his playthings, or his food.—The appetite in general, is not diminished, but rather, from the frequent evacuation of the stomach without nausea, the desire for food is augmented.

The fits of coughing come on at irregular intervals, and do not require any exciting cause to produce them. They are, nevertheless, produced at any time by a sudden motion, by crying or laughing, by distention of the stomach with food, by the effort of deglutition, especially if such effort be compulsory, as the forcing down of medicine, &c. and sometimes even by the association of ideas in the child's mind, at the sight of the cup or spoon containing the medicine. The *force of example* may be an exciting cause, so that the business of the school room has often required to be suspended, from the interruption produced by the incessant coughing kept up by this cause.*

The duration of the second stage is from three to four weeks, during the first part of which time, the violence of the disorder seems to increase, and during

* A striking instance of the inconvenience of this sympathy fell under the author's own observation.—Four children were affected at the same time with Pertussis. They were accustomed to take their food at a little table by themselves, and they had seldom proceeded far in their meals, before one of the four had a paroxysm of coughing;—he would leave the table, cough till he had thrown up all the food he had taken, and would then return, with a fresh appetite, for more. The example of the first was a signal for the second to go through the same operations, and so on through the whole, until at length, it became necessary to separate them during meals, to save them from the fabled miseries of Tantalus.

the latter part, remains stationary, at its height. The reason of this is to be sought in the peculiar nature of the inflammation, which *creeps* from one part of the mucous membrane to another;—for it is obvious, that if the whole surface were affected at once, the inflammation, and of course the cough, would not remain stationary, but would sooner reach its acme, and more suddenly decline.

The commencement of the third stage is denoted by a perceptible *change in the expectoration*. Whereas it before was thin, transparent, and raised with much effort, and sparing in quantity,—it now becomes thick, abundant, and more easily thrown up. This stage of the disease varies in its duration more than either of the others;—complete convalescence being sometimes established in four weeks, at others, the characteristic cough continuing for as many months. The tardiness of the convalescence is proportionate to the violence of the symptoms of the second stage, to the weakness of the patient and the diminished temperature of the air.

There is a difference of opinion concerning the existence of a state of Pyrexia in Pertussis. Sydenham *seldom* observed any febrile excitement; Cullen *frequently* perceived it—and Darwin and Watt think that a degree of fever can *always* be discovered at some part of the day. The true state of the case is believed to be that Pertussis, in its simple state, is unattended by any marks of inflammatory fever, but it *very commonly* happens that a catarrhal affection of

the lungs accompanies the specifick disease, and the symptoms usually attending this affection are those of *general inflammation*.

The existence of Pertussis is not incompatible with that of other specific diseases. It has been observed to co-exist severally, with Scarlet Fever, with Chicken-Pox, and with the Vaccine disease. This last disease has been thought to diminish the violence of the symptoms in Pertussis,—but it has never occurred to the writer of this, after making the experiment of vaccination many times, to witness so fortunate a result. The conclusions which M. Bertrand arrived at, in his experiments, however, are hints not to be thrown away, and a thorough test of the truth of them, is a desideratum in the present state of our knowledge on the subject.

The diagnostick symptoms which are of most importance in Pertussis are those which have already been mentioned, (page 7) as distinguishing it from Catarrh. The other disorders of children attended with cough, with which this disease may by possibility be confounded, are Cynanche Trachealis, Bronchitis, Pneumonia, and Spasmodick (acute) Asthma of children:—from all of which it may easily be distinguished by the *peculiar nature of the cough*, which in Pertussis, consists of a great number of rapid, expiratory efforts, followed at last by a sonorous, full inspiration, in which circumstances it materially differs from all the rest. It differs also from Croup and Quinsey in its *mode of attack* not being sudden, and from all of

them in *having an epidemick origin, and in the exciting cause of the paroxysm.*

The *Prognosis* of Pertussis is to be obtained by a very careful examination of the following circumstances:

1st. The age of the patient,—a very tender age being unfavorable. When infants do not vomit the mucus of expectoration they are sometimes in danger of being suffocated by it.

2d. The state of the patient previous to the accession of Pertussis, and the existence of other diseases. Tubercles, existing in the lungs, often being accelerated, and sometimes inflamed, in consequence of Pertussis, become a very dangerous accompaniment to this disease. Dentition, also, especially in irritable habits, augments the danger of the disease.

3d. The degree and nature of the constitutional affection, or symptomatic fever. Convulsions and Epilepsy sometimes occur from the disturbance produced in the system by Pertussis.

4th. The ease, or difficulty of breathing. The free transmission of blood through the lungs is interrupted by the violence of the fits of coughing,—and in consequence of this obstruction, its free return from the vessels of the head, whence it is carried with unusual force is also impeded. A moderate hæmorrhage coming on from the mouth and nose, in this state of things, is to be accounted a favorable circumstance, although a profuse evacuation of blood may bring on dangerous debility. It is but just, however, to state.

that, although this sort of hæmorrhage is a very frequent occurrence, it has never happened to the writer to see an instance in which *any injury* arose from it.

5th. The occurrence of inflammation, or the tendency to such occurrence, in the pulmonary apparatus. We have already stated (page 9) that the specific disease of which we treat, attacks different portions of the mucous membrane successively. In this the parts affected exert what has been called, by Mr. Hunter, "*continuous sympathy*." When the sympathy of *contiguity* is exerted, and the parenchyma of the lungs becomes inflamed, the danger is much increased. The secondary disease, in this case, often obscures the primary specific one, so that the distinctive sound of the cough is sometimes lost;—in such a case therefore, it may always be considered a favourable omen when the whoop returns.

The treatment of Pertussis involves many considerations oftentimes extremely embarrassing, inasmuch as the indication proper to be pursued during one stage of the complaint, and in one modification of it, may be very insufficient and indiscreet in another. It is believed, however, that the following indications present general view of all that is proper to be done in the treatment of Pertussis.

First—To remove all offending matters from the stomach and bowels.

Second—To shorten the period of the complaint.

Third—To guard against the inflammation of any of the respiratory organs, and to obviate such inflammation when it does occur.

Fourth—To preserve the vigour of the system by a proper attention to clothing, diet, air and exercise.

Fifth.—To restore the healthy functions and remove the cough and other symptoms, which sometimes remain long after the specifick disease which accompanied them has disappeared.

To answer the first indication it will be necessary, in almost every instance, to commence the treatment with an emetick, or cathartick. The stomach partakes largely in the disease, and exciting it to throw off the mucus, which it furnishes in great abundance, has a similar good effect with the discharge of the mucus by expectoration. Besides, the expectoration of children is almost always swallowed, and thus it happens that very large quantities of mucus are brought up by vomiting. Ipecacuan, although bulky and nauseous, is the most convenient article for this purpose, since no quantity which can be easily swallowed at once, has ever been known to produce a deleterious effect;—a charge to which the preparations of Antimony are all liable, *when given in full doses*.—the submuriate of Mercury is the best article for moving the bowels of children, and should be exhibited either before or after the emetick, since if given at the time, and the emetick operates speedily, a doubt will arise as to the propriety of repeating the cathartick, and too much, or too little purging will be likely to happen. Three grains of the submuriate is a full dose for a child one year old, and may be assisted by Castor Oil, if the bowels should move slowly.

The vomiting and purging should be repeated throughout the disorder as often as the stomach and bowels suffer from accumulation.

By some *our second indication* would be considered improper, since a disease, which arises from specific contagion, will cease only when that contagious principle is exhausted, and it may be considered injudicious to interfere with the processes undertaken by nature for the removal of that cause. This objection is best answered by an appeal to experience, which shows, that remedies applied, and circumstances affecting the mind and body *have effected* a change in the system of the patient, and have materially shortened the complaint. But it must be confessed that all the known methods of bringing about this desirable object are extremely vague and uncertain. We will briefly state the estimation in which our own experience, and the observation of others, have led us to hold them.

NARCOTICKS.

With a view of lessening the morbid sensibility which exists in the parts concerned in this disease, the entire class of narcotick medicines have been resorted to, with various degrees of success.

1st. Opium—The most useful of all the narcoticks in other diseases, effects but little good when given in the second stage of Pertussis. It may be given as a palliative, when there exists no heat, thirst, or other

mark of Pyrexia, and it may then conduce somewhat to lessen the frequency and violence of the paroxysms. But it is liable to two objections of weight.—In the first place, it *increases the disposition to Coma*, and secondly, it *produces Costiveness*.

2d. Digitalis—Of all the narcoticks in Pertussis, we have found the most useful to be Digitalis. It is undoubtedly a contra-stimulus, and therefore appropriate to the nature of the disease ;—and, from the great excitability of the urinary apparatus in children, it produces diuresis more speedily and certainly than in adults. This circumstance makes it a much safer medicine than it otherwise would be, since, if it creates a discharge, the danger of an accumulation of its effects is much diminished. It is most conveniently given in the form of tincture. Six drops of a saturated tincture may safely be given to a child one year old, at intervals of six hours. This dose may be increased, by one drop at a time, till a diuretick effect is produced, or the state of the pulse indicate its diminution or suspension. Under the use of Digitalis the fit of coughing will frequently be at longer intervals and less violent, and convalescence will be accelerated. So far from being liable, where an inflammatory determination to the lungs exists, to the objections against Opium, it is frequently employed to advantage as an auxiliary to the appropriate remedies for such a state.

3d. Conium Maculatum—has been much extolled in the treatment of Pertussis. Dr. Butter introduced it to the notice of the medical world, with many praises.

It is undoubtedly a safe, and in many cases a useful narcotick. The most convenient form for exhibiting, is that of a solution of the extract, rendered agreeable to the palate by the addition of a little syrup. The following formula has been successful in several cases we have seen.

R. Extr. Conii ʒi
 Tr. Camphoræ Opiatæ ʒss.
 Syrup Tolutani ʒss.
 Aq. Rosarum ʒiv misce.

From one half to a whole teaspoonful of this mixture may be given once in four hours to a child one year old. The other narcoticks, Belladonna, Hyoscyamus, Stramonium, have all been used in this disease, but we think we do not underrate their powers in stating that they have become almost obsolete in the treatment of Pertussis.

CANTHARIDES.

After the narcoticks we come to the consideration of a remedy very different in its properties and mode of operation. This medicine is the Spanish fly. Its use in Pertussis has been known for some time, and was particularly brought into notice by Dr. Letsom, by whom the credit of invention is referred to Sutcliff. The saturated tincture is the form usually prescribed;—it may be given every three hours, beginning with a dose of two drops for a child, one year old, and increased until symptoms of strangury appear,

soon after which a decided abatement, and frequently almost a cessation of the peculiar cough will take place. It is easy to remark a degree of sympathy between the mucous membrane of the lungs and that of the urinary organs. If a common cold, or Catarrh takes place, an increased irritability is for the most part observed to affect the urinary apparatus. In the Catarrh of old people, and in some cases of Peripneumony, medicines which operate specifically upon the kidneys and bladder, often produce a happy effect:—for instance, the resins, particularly Balsam Copaiva, and Spirits of Turpentine. We have recently seen the Cantharides, in the case of an aged person with Peripneumonia Notha, prescribed with the best effect. It is worthy of notice too, that Digitalis, which we have stated operates so advantageously, is particularly diuretick in children. An ingenious and fanciful writer* notices an analogy between Pertussis and Gonorrhea. “They are both received by infection, are both diseases of the mucous membrane, and are both generally cured in four or six weeks without medicine.” And he goes on farther to state that the treatment should therefore be the same.

From these facts and statements, we may infer a *direct sympathy* between the *mucous membrane* of the *urinary* and that of the *air passages*, by means of which a stimulus applied to one, relieves the too great excitement of the other.

* Darwin.

ALKALINE REMEDIES.

The fixed alkalies, exhibited in various forms, have been thought to abridge the duration of Pertussis.— But although these prescriptions are supported by very good authority, we confess ourselves skeptical as to their beneficial effects. We have rejected them in our practice, not because we knew any *harm* of them, but because they occupy the place of more active articles. Those most commonly prescribed are the Sulphuret of Potass, and the Carbonate of Potass, and Carbonate of Soda. The first article has been employed, no doubt, from the recommendations bestowed upon it by Willis in the treatment of Croup. It may be given in doses of five grains every four or six hours, to a child one year old. It is, at best, but an uncertain expectorant and diuretick. The other two articles have had their day in popular practice, and have received the support of some highly respectable names in the profession. The following are the prescriptions most in use. The dose, a teaspoonful every two or three hours, for a child one year old.

Dr. Richard Pearson's Mixture.

- R. Carbonat. Sodæ
 Vin. Ipecac. ana ʒi
 Tr. Opii gutt. xx
 Aquæ ʒiiss. misce.

Popular Cough Mixture.

- R. Carbonat. Potass. ʒi
 Cocc. Cacti gr. x
 Sacch. Alb. Q. S.
 Aquæ ʒiv. misce

If these compositions have any effect, it is probably in the *primæ viæ*. And this effect will undoubtedly be a good one when the stomach and bowels contain acid and offensive contents, or when such a weakness of these organs exists as will allow the articles used for food to take on the acetous fermentation. Be this as it may, we believe every valuable purpose of the sort may be obtained by adding a quantity of lime-water, or of Carbonate of Soda to the milk, which constitutes the principle food of children. We have experienced, in this as well as other complaints of children, excellent effects from thus preventing the ascendent disposition of the milk used in their diet.

ANTI-SPASMODICKS.

The word *spasm* is less frequently used in pathology than formerly, and the *inflammatory nature* of Pertussis is pretty generally admitted. We shall not, therefore, be accused of prejudice if we pass over, in speaking of anti-spasmodicks, fœtid remedies, Castor, Musk, Artificial Musk, Succinic Acid, Syrup of Onions, and Syrup of Garlic,—all of which have had their advocates. Assafœtida deserves a more respectable mention, and certainly in this disease, appears to possess the good properties of all the others. Under its use, it certainly does appear that the appetite improves, the violence of the cough is abated, and quiet sleep is induced. What is quite remarkable, is, that children, although at first disgusted with the smell of

the medicine, almost always acquire a relish for the flavour of it, so that they frequently ask for it. The best method of employing it is to give it five, or six times a day, and especially at bed-time, in as large quantities as the stomach will bear, in the form of a julep, or emulsion.

ARSENICK.

The authority of Dr. Ferriar, than whose, no name stands higher in the records of modern clinical practice, does not permit us to pass over the remedy he proposes for Pertussis. This is Fowler's mineral solution. He recommends it to be given every night, in doses from one to two drops for a child one year old, taking care to prevent its accumulation in the system, by giving an occasional purge. The propriety of using this article becomes stronger, when we consider the analogy between the effects of it, and of some of the narcotick class of medicines. Fowler's solution, (according to Dr. Miller, of Franklin, Mass.) has cured Tetanus as well as Opium, and we ourselves have seen it produce an effect, in Delirium tremens, almost as decided as the effect of Digitalis.

EMETICKS.

To shorten the career of Pertussis it has long been customary to resort to emeticks, and probably no class of medicines have been more successful in bringing about this object. Nature herself seems to point to

the use of them. For it is observed in all cases where the patients vomit easily at every fit of coughing, the disease is more mild than where the vomiting does not take place. By vomiting, not only is the mucus discharged from the stomach, but such an impression is made on the system at large as assists the powers of nature in altering the train of morbid actions. There is no need of using a great variety of articles to produce the desired effect:—two or three of the most common and best known articles possess all the properties which are wanted.

1st. Sulphate of Zinc—From the supposed efficacy of astringent medicines, in the disease of which we treat, the white vitriol has been much used as an emetic. It is very speedy in its operation, and when it is the intention merely to evacuate the stomach, we believe it will answer every purpose, its effects being, for the most part, confined to the stomach. It may be given in doses of five grains in a watery solution to subjects of one year old, and repeated every ten minutes, till the desired effect.

2d. Ipecacuan—Powdered Ipecac, either alone, or in conjunction with the white vitriol, produces a greater degree of nausea, and of course a more decided constitutional effect. It sometimes produces diaphoresis and always provokes a discharge of the bowels.

3d. Antimony—But the most useful of all the emeticks, and we think we may say, of *all medicines*,

for fulfilling the indication before us, is the Tartrite of Antimony. It evacuates the stomach, opens the bowels, and cutaneous vessels, and subdues the first appearance of an inflammatory tendency. It is not one of its least recommendations, that it does not offend the palate, and may be given in any vehicle without suspicion. For so easily are the kinks of coughing excited, that the least offer of constraint, such as is necessary to exhibit medicine to a child, may bring on a paroxysm, which will baffle all the address of the best nurse, or attendant. To produce the best effect of Antimony, it should be given in such small doses as to remain for some time upon the stomach. In cases where children do not readily vomit, the most unquiet period is during the night. This is partly occasioned by the food and other matters swallowed during the day. It is desirable, therefore, that the stomach should be placed in such a situation, that the contents of it may be ejected, should a severe fit of coughing occur. This purpose is very easily effected by mixing with the quantity of drink, which the child usually requires during the night, from one half to one grain of the Tartrite of Antimony, for a subject one year old. The use of this medicine accords extremely well with that of moderate doses of Opium, by which its purgative quality is restrained. A moderate dose of paregoric at bed time and the antimonial drink during the night, will, in a great number of cases, abate the violence, and shorten the duration of the disease.

PURGATIVES.

After the bowels have been duly evacuated of their offending contents, there is not much to be expected from purges in Pertussis. Yet in most cases where we have occasion to give emeticks, we shall find it useful also to procure, by the aid of medicine, two or three motions. To answer this double purpose, a combination of equal parts of powder of Ipecac, and of Jalap in doses of three grains of each for a child one year old, and repeated every two or three days, we have found to be a valuable preparation. Mercurial purges are those most commonly in use in Pertussis, and in cases where an inflammatory tendency is apprehended, they are undoubtedly to be preferred.—Two or three grains of Calomel, or five or six of the blue pill, is an eligible dose for a child one year old.—There are undoubtedly some cases of Pertussis, in which constipation is a prevalent symptom, and in which much may be done by purgatives towards fulfilling the indication we are considering; but we think the practice may be a little overdone. There is a kind of *routinism* prevalent which refers all disorders of children to the *primæ viæ*, and which prescribes purgatives for all such disorders, without much discrimination. We do not mean, by these remarks, to lessen the value of purgatives in a case where an inflammatory tendency prevails. In this case they are one of the principal means to be depended on for lessening the morbid heat of the system, and the preternatural force of the circulation.

TAR VAPOUR.

It would almost have been proper to have placed this remedy under the head of *Emetics*, since its operation, in almost every case, is to produce vomiting.—It differs, however, from every thing of that class, in being applied in the first instance to the seat of the disease. It is a medicine well adapted to unloading the bronchiæ, and has the advantage of being a remedy easily obtained and applied. Dr. Robert Watt, whose authority stands deservedly high in respect to this disease, expresses a good deal of confidence in the good effects of the tar vapour. His mode of administering it was, to shut the patient and its attendant, in a small close room, filled with the fumes of burning tar. The patient was ordered to be kept in the room until a paroxysm of coughing, followed by vomiting, should have taken place; after which the respiration and sleep were, generally, improved.

A more convenient mode of administering the remedy is proposed by Mr. Wansborough, in the *London Medical Repository*, for March, 1821.—A quantity of tar is placed in a tin vessel, like a common coffee pot, having a tube for the passing out of the fume and a tight cover which receives through it the heated poker, which volatilizes the tar. The tube which emits the fume, is held under the nostrils of the patient, who is thus made to respire it. Care must be taken not to heat the poker too hot, for fear of an explosion, and for the same reason, it is best not to shut the cover

quite close. Where there are no active inflammatory symptoms, the tar is undoubtedly a useful remedy.—The best of Barbodoes Tar should be used, *free from impurities*, for the burning of bits of wood, cloth, leather, &c. which are often found in common tar, would be highly offensive, and perhaps injurious.

TOPICAL APPLICATIONS.

It is pretty generally admitted that topical applications do not avail much towards fulfilling our present indication. Blisters are but seldom *used*, and more seldom *useful* in the second stage of *simple* Pertussis. The Tartrate of Antimony, either in an aqueous solution, or combined with a liniment, or cerate, has been supposed to act specifically when rubbed upon the Epigastrium, in putting a stop to the paroxysms of Pertussis. The formula of Struve is as follows :

R. Antimon. Tartrit. gr. xx.
Tr. Meloes Vesic. ʒi.
Aquæ ʒii. Misce

This is to be applied over the region of the stomach, every two or three hours. The same effect may be as conveniently produced by a plaster of Burgundy pitch, on which a few grains of Tartrate of Antimony has been sprinkled; or by a mixture of resinous cerate with the same preparation of Antimony, in the proportion of one ounce of the former to one drachm of the latter. The effect of Tartrate of Antimony

when applied to the skin is well known and very peculiar. After having been applied for a considerable time, there takes place an eruption of pustules very nearly resembling the vaccine or variolous pustule.—By continuing the application, any degree of ulceration, and of purulent discharge may be effected. This mode of effecting counter-irritation and topical discharge, is very valuable in many diseases, but does not appear entitled to very high consideration in Pertussis.

PRUSSIC ACID.

The last article of which we shall treat, whose properties have been considered as adapted to the purpose of our second indication, is the Prussic, or Hydrocyanic acid. The reputation of this article has been very widely blazoned, both in Europe and our own country, and we shall be pardoned for relating at large, at the risk of being somewhat tedious, our experience in the use of it. The Prussic Acid we have made use of is prepared according to a simple and exact formula, and very nearly corresponds with that adopted in the national Pharmacopæia.

Take of,

Prussiate of Iron, 1 1-2 oz.

Nitric Oxide of Mercury, 1 oz.

Rub them together in a mortar, put them in a Florence flask, and add four ounces of distilled water:—

boil them together for a few moments, frequently agitating the mixture. Filtrate and wash the residuum on the filtre, with two ounces of boiling, distilled water. Add to the filtred liquor one ounce of Iron filings, and let it stand till cold ; then add one ounce of Sulphurick acid, and agitate the mixture. Transfer the ingredients to the retort, placed in a sand bath, and draw off by distillation into a receiver, surrounded with ice, two ounces and a half. This is the concentrated Prussic acid.

Before using any of this acid, its strength was tested by the following experiment. A full grown, live hen was caught, and her beak held open by an assistant. Three drops of acid were dropped from a phial into her mouth. In less than thirty seconds from the time the last drop reached her beak, the hen fell dead. This experiment was repeated with a parcel of the acid subsequently prepared in the same manner, and was followed by the same effect. I have besides no reason to doubt the genuineness of the preparation I have used, having noticed its effect in many cases of different diseases, and finding the effect of an over-dose to be exactly similar to what is recorded of it by Granville and others. In order to prevent the danger of mistaking the dose of the concentrated acid, I have *always added* to the acid prepared as above, *three times its bulk of Rose Water*, and it is this *diluted preparation* which we call *Prussic acid*, in all the cases which follow.

After having ascertained by repeated trials, in cases of which I have preserved no record, the dose appropriate to the different ages of children, I began the use of it on the same day, in a number of cases, in different stages of the complaint. The medicine was cautiously increased in every instance. The cases selected occurred during a very general epidemick, and were at the time, cases of simple Pertussis. We have drawn up, in a tabular form, a sketch sufficient for the present purpose; we refer to the cases at large, which, with some others will be found annexed.

The result of our experience is certainly unfavourable to the character which the Prussic acid has obtained in the cure of Pertussis. Although it checked the progress of the cough in some of the milder cases, it appeared inadequate to subdue the severe ones. In some cases, during its use, the cough certainly abated, but in others the disorder pursued its course unchecked. The following table will present a view of the different periods of the complaint, in which the acid was given, the dose of the medicine, and the final result.—The record of all the cases was commenced April 7th, 1821.

TABLE.

<i>Names of the Patients.</i>	<i>Ages in yrs.</i>	<i>No. of weeks since the cough commenced</i>	<i>No. of drops of diluted P. Acid.</i>	<i>No. of times repeated in 24 hours.</i>	<i>Remarks.</i>
Elliot Scilly,	2-3-4	3	10	4	Apparent benefit at first, but without permanent effect.
Sarah Ann Lindsey,	4	3	15	4	Doubtful effect—irregularly administered.
Joseph Tuttle,	7	1	16	4	No decided effect—slow convalescence without medicine.
Henry Tuttle,	2	1	8	4	Rapid convalescence—look emetic and purges—apparently no effect from P. Acid.
William Dickenson,	6	3	15	4	Severe case—no effect—slow convalescence.
James H. Trask,	5	4	12	4	No effect—irregularly administered—recovered.
Joseph Mann,	3-3-4	2	10	4	Decided relief from medicine.
Benja. Crowel,	6	3	15	4	Painy child—apparent benefit—slow convalescence.
Wm. Crowel,	4	3	12	4	No effect—recovered.
Catharine Stapleton,	20	5	25	3	No apparent effect—cough went off suddenly.
George Dickenson,	3	6	15	4	No effect—took bark and recovered.
Rebecca Andrews,	2-1-2	8	12	4	Apparent benefit—recovered.
W. H. Mann,	2-3	5	4	3	Decided relief—mild case.

From the experience very imperfectly set forth in the above table, we think the Prussic Acid promises so much that it ought not to be wholly rejected, but is deserving of farther trial. But we think we are warranted in recommending that the faith of such sanguine writers as Dr. Granville, be received by the faculty "cum grano salis." The excellent good sense and discrimination discovered by Dr. Elliotson in his brief but satisfactory treatise gives great weight to his opinion, which seems to be, that although the Prussic Acid affords relief to the *functional disorders of the stomach* and to some other complaints, yet it is altogether *useless in Pertussis*. It is indeed to be regretted that the Hydro-cyanic acid should have fallen so far short of expectation, on this side the Atlantick. But it cannot be concealed that the high encomiums bestowed upon this medicine in the treatment of Tetanus, Hysteria, Phthisis Pulmonalis and Pertussis, have not been realized with us.

We have considered at some length the mode of fulfilling our second indication, that of *abridging the duration of Pertussis*, because, notwithstanding the skepticism which many profess, and which Heberden seems to favour, we think it *practicable*, and if practicable, it is no more proper to wait for the natural cessation of the complaint, than it is to wait for a conflagration to go out, which it is in our power to extinguish.

The means to be used for effecting the purposes of our third indication, to guard against and obviate inflammation, come now to be considered.

1st. The first and most important of these means, is *blood-letting*. When the pulse is hard, *sharp* and *wirey*, the respiration hurried, difficult, or painful during the interval between the paroxysms; where the loss of appetite, heat of skin, restlessness at night, rapidity of pulse, and deficient secretions shew the sympathy of the constitution with some local disease, blood-letting is indicated, and produces the happiest result. The apparent feebleness of the subject, does not contraindicate the use of the lancet. The more feeble, the less able is the subject to sustain the complication of disease which threatens, or exists. The *greater* danger is the *neglect* of this evacuation. Mr. Robert Watt has ably insisted upon this point, and with great candour laments his not having used the lancet seasonably in his fatal cases. It is proper to remark here, that the description by Watt, and the alteration of structure discovered in his fatal cases, on dissection, prove them to have been *cases of Bronchitis*. The experience of this able writer, then, does not prove so much the necessity of bleeding for *simple* Pertussis, as for the inflammatory affections accompanying the original specifick disease. Where from any cause it is found impracticable to employ venesection, the application of leeches, or the cupping glass, to the chest, should always be made a substitute.

2d. Evacuations from the bowels by medicine are always necessary to be procured, in the inflammatory state of the complaint. Submuriate of mercury, is the medicine selected by almost all practitioners, for this

purpose. It doubtless makes the most decided impression upon the system. Two grains, will, in general, prove a sufficient dose for a child one year old, and, in ordinary cases, it will not be necessary to administer it oftener than once in twenty-four hours. The hour of bed time seems most proper to select, since the quiet of the body and the absence of *recently swallowed food*, allow the medicine the proper time and condition for performing its office well. If it be desirable to increase the mercurial, and diminish the purgative effect of the Submuriate, it will be proper to combine a small portion of opium with it. In those cases in which the fear of the parents, or any other cause leads to the rejection of mercurial purges, the powder of Jalap will, as far as purgative power alone, is wanted, afford an eligible substitute.

3d. The warm bath, although not to be depended upon, alone, will be found a most excellent auxiliary to all the other means of answering our present indication. If administered towards night, it shortens the usual period of febrile heat, produces a calming and soothing effect, and in general procures better rest at night. A very convenient mode of procuring the effect of a warm bath, in cases of infant children, is, by wrapping their naked bodies in blankets wrung in warm water. They frequently fall asleep during the applying of the fomentations.

4th. From the incessant motion of the bodies of children, when they are not so sick as to be confined to the arms, or their cribs, the operation of *diaphore-*

ticks is rendered quite uncertain. Antimonials are required in almost every case of Pertussis, and may be, in general, depended upon to effect all that can be done by diaphoretick medicines. It will be found very convenient to combine small doses of pulvis antimonialis with the evening dose of Calomel, where the latter medicine is required. A saturated solution of Carbonate of Potass, or of Soda, particularly the former, will sometimes be found useful in effecting diaphoresis.

Under the fourth indication we are to consider the rules relating to the non-naturals.

1st. The *food* should be light, nutritious and non-stimulating. It is best in a fluid state, for it is not a matter of indifference to a stomach, whose contents are rejected several times a day, whether those contents consist of hard lumps, badly masticated, as children's food generally is, or soft and approaching the consistence of fluid. Milk stands at the head of all other articles, and should constitute the principle part of the food of children in Pertussis. Farinaceous substances reduced to a soft paste, may be taken in proper quantities with the milk,—and fruit, properly cooked, may be cautiously allowed. If meat be given at all, and it may be necessary in cases of great debility, it should be very minutely divided. The juices of meat in plain and simple form, without the mixture of much vegetable matter, is always an eligible article of food. Children in Pertussis should not be allowed to swallow their food too fast, or in too large quantities at one time ;—the consequence of either excess being.

in general, a paroxysm of coughing, which occasions the rejection of the whole from the stomach.

2d. Clothing.—There are two reasons in particular why children in Pertussis should be warmly clothed. The first is to prevent the impression of cold to which they are at all times exposed, and which is so likely to be the cause of inflammatory disorders, and secondly, it is essential that they should be kept much in the outer air, and yet it is impracticable to do so, unless the body be well defended by warm clothing. During the winter months, flannel should be worn next the skin, and where the lungs are habitually weak, or a scrofulous temperament prevails, the chest should be covered with a garment of wadded cotton, or eider down, made thick enough to be a complete security from the chill of the coldest weather.

3d. Air, and exercise and friction of the skin are highly necessary in Pertussis. Without them the appetite is apt to fail, the patients grow feverish, and inflammatory disease is invited. The early part of every day is the best time for carrying children abroad, and, when out, their attention should be excited, but not fatigued.

In the last place we have to consider, under the head of our fifth indication, the means proper to restore the healthy functions, and remove the sequel of Pertussis.

1st. Change of place.—Restoration to health in children, is facilitated, and even effected, by removal from one place to another, in a manner difficult of ex-

planation. For it is not merely the breathing a purer atmosphere, or that of a greater elevation from the sea, that produces the good effects, but simply the *change*, whether it be from the sea-board to the interior, the town to the country, the valley to the highlands, or vice versa. No doubt much of the imputed good effect of the change, is in many cases to be referred to the benefit derived from carrying children into the open air, which must be done in a removal; but still it remains true that children, who have been daily exposed to the air at home with but little benefit, have been suddenly recruited by breathing the air of a distant place. This is so remarkable, that children who are languid, listless, unwilling to take the breast, or receive food, will, in twenty-four hours after their removal, recover their vivacity, and their appetite, and show symptoms of returning health. There is a state not unfrequently occurring after severe cases of Pertussis, of great emaciation and feebleness, which frequently obtains the indefinite name *Marasmus*, and is almost always connected with disease of the mesenterick glands, and deficient absorption of chyle. In this state it is upon such general remedies as the change of air and the cold bath, that we must almost entirely depend.

2d. The cold bath is a remedy of rather difficult application with children, but is too useful to be entirely overlooked, on that account, in cases where the general vigour is much impaired. It is usual to suppose the good effect of cold bathing is increased by

the additional stimulus upon the skin from the presence of sea salt in the water. To obtain this, it is not necessary to procure sea water, but all the advantages of sea-bathing may be had by dissolving in common fresh water, a requisite quantity of common salt. After cold-bathing, the patient's skin should be rubbed perfectly dry, and reaction of the cutaneous vessels be excited by friction, and by wrapping the body in a warm blanket.

3d. Cinchona.—Dr. Cullen gives his important testimony in favour of the Peruvian Bark, to be used early in the disease, when it is unaccompanied by fever;—but we believe most practitioners will agree with us that it does not merit all his encomiums, when given in the second stage of the complaint. Be that as it may, it is undoubtedly one of the most valuable tonicks we possess in removing the morbid traces of Pertussis, after the specifick disease has disappeared. The bark is, in general, best administered to children in form of decoction, and should be given in as large a dose as the stomach will bear, and frequently repeated. The powder is sometimes an eligible form, but the tincture is never proper for the stomach of children, unless mixed with other forms of it, in very small quantity, in order to render it a little more stimulating.

4th. Next to the Peruvian Bark, in answering our present indication, are the various preparations of Iron. The Carbonate, the Solution of the Sulphate, and the Tincture of the Muriate of Iron, are all convenient pre-

parations for our present purpose. But the best of all the Chalybeates, for children in Pertussis, is the Phosphate of Iron. This is light, mixes readily with Syrup and Water, and has little, or no disagreeable taste. The following formula has, by many trials, been found a good one.

R. Phosphat. Ferri ʒi Syrup Tolutan ʒi
 Pulv. Gum. Accaciæ ʒi Aquæ ʒiii Misce.

For a child one year old the dose may be one teaspoonful every four hours, to be increased as the stomach becomes accustomed to its use.

5th. The application of a plaster, slightly stimulating, as the Emplastrum Gummōum, or Burgundy pitch, is a mean of subduing the habitual cough left by Pertussis, which affords more relief than could be expected from so simple an application. It is conveniently applied to the back, between the shoulders, and to extend round upon the ribs;—the sternum is thus left for the application of blisters, or issues, should they become necessary. Beside the gentle and constant counter-irritation afforded by the plaster, it affords, if made sufficiently large, a defence for a considerable portion of the chest from the cold air, better than almost any other covering. We have now finished the consideration of the curative means to be used in Pertussis, and we trust the minuteness of the details will be excused, by the important nature of the disease, upon the altar of which, if we may be allowed a figure, much human life is annually sacrificed.

CASES.*

1. Elliot Scilly—April 7th, 1821—aged 2 years, 9 months—had Pertussis 3 weeks: has very severe kinks, and is wasted in flesh. The eruption of Chicken Pox has just appeared and looks very well. Sumat Acid Pruss. dilut. gtt. x. 4r. in die.

April 9th. Medicine agrees very well with his stomach: His mother reports his cough greatly diminished as to violence, sleeps better, vomits more easily, and with better effect; brings up large quantities of tough mucus. S. gtt. xl. 4r. in die.

April 11th. Coughs more frequently since last report, but does not strangle so much. S. gtt. xv. 4r. in die.

12th. Appearance improves as to appetite and cough—great feebleness and emaciation. Continuentur Medicamenta.

14th. Same report. Con. Med.

16th. Cough is better, but diarrhœa has come on. Con. Med.

18th. Has discontinued the medicine for two days; is reported much relieved—Medicine always administered irregularly. Con. Med.

23d. Has taken medicine regularly for four days; cough less violent,—no improvement in general ap-

* These cases occurred at the Salem Alms House, and were selected from a much larger number.

pearance. Let him have a tonic mixture, and a plaster of Burgundy Pitch to the back. Con. Med.

25th. Has tolerable appetite—fever fits and sweats; has taken for two days gtt. xxiii. 3r. in die. Cough a little better.

30th. General appearance worse;—the Prussic Acid was now omitted. (Notwithstanding the use of every thing proper for his situation, the child fell into Marasmus, and died in Autumn.)

II. Sarah Ann Lindsey—4 years—April 7th, 1821. Has had cough 3 weeks—is puny—has eruption of Chicken Pox. S. Acid Pruss. gtt. xv. 4r. in die.

9th. No effect, except slight nausea every time medicine is given. Con. Med.

11th. No alleviation. Con. Med.

12th. Slight improvement. Con. Med.

14th. No appearance of improvement. Con. Med.

16th. Has much improved since last report;—coughs less, sleeps better. Con. Med.

18th. Has discontinued the medicine.

23d. Convalescent.

III. Joseph Tuttle—7 years—April 7th, 1821. Has had cough one week,—symptoms mild, and as in ordinary cases. S. Acid Pruss. gtt. xvi. 4r. in die.

9th. No effect. Con. Med.

11th. Takes 20 drops four times a day—no marked effect—does not cough so much at night.

12th. The temperature of the weather having decreased, appears to have taken cold—coughs more. Con. Med.

14th. Takes 25 drops four times a day,—slight improvement.

16th. Same report. S. gtt. xxx. 4r. in die.

23d. Has been better, but has now taken more cold. Had last night very severe kinks of coughing.

28th. Appearance has improved.

30th. Convalescent.

IV. Wm. Dickenson—6 years. Has had cough 3 weeks—robust—has tinea capitis severely—no remarkable symptoms in his case. S. Acid Pruss. gtt. xv. 4r. in die.

11th. No alleviation. Hæmorrhage from the mouth and nose. Con. Med.

12th. Has taken cold—coughs more. S. gtt. xx.

14th. Coughs more.

16th. Same report.

18th. Worse. S. gtt. xxv. 4r. in die.

23d. Eyes blood-shot—face swelled—kinks very severe. Con. Med. Let him take Tr. Cantharid. until strangury is produced; let a blister be applied to the neck.

30th. Is no better. The Prussic Acid was now given up. This patient had slow convalescence without medicine, and subsequently lost his eye-sight by measles.

V. Henry Tuttle—2 years—April 7th, 1821.—Has had cough one week—symptoms moderate. S. Acid P. gtt. viii. 4r. in die.

9th. No effect. Con. Med.

11th. No effect. Con. Med.

12th. Coughs more. Dyspnæa.

14th. Took vomit yesterday, which relieved the dyspnæa. Has gradually increased his medicine, till he takes gtt. xxv. 4r. in die. Cough rather increases. Con. Acid. Pruss.

16th. Cough about the same as at last report.

18th. Has omitted his acid since yesterday morning; let him resume it. Dyspnæa. R. Pulv. Ipec. gr. ii. Pulv. Jalap gr. iii. S. statim, et repet. hora somni.

23d. Shows symptoms of amendment in cough and respiration: had yesterday considerable bleeding from nose, and passed a more comfortable night than common: appeared benefitted by the hæmorrhage.

30th. Has continued use of medicine: amendment has been progressive: Convalescent.

VI. James H. Trask—5 years—April 7th, 1821. Has had cough four weeks—symptoms as usual. S. Acid. Pruss. gtt. xii. 4r. in die.

9th. No effect. Con. Med.

11th. No effect. S. gtt. xv. 4r. in die.

12th. Slight improvement. Con. Med.

14th. Has not mended since last report. S. gtt. xx.

16th. Has somewhat improved—diarrhœa. Con. Med.

18th. Appearance improves slowly. Diarrhœa left him. Con. Med.

23d. Medicine very irregularly administered. Convalescent.

30th. Has had a return of cough by taking cold. Cough subdued by taking Opium at bed time.

VII. Joseph Dann—3 years, 9 months—April 7th, 1821. Has had cough 2 weeks; symptoms severe. S. Acid Pruss. gtt. x. 4r. in die.

9th. Coughs rather less, and “pukes much softer.” Con. Med.

11th. Marked change for the better; does not strangle so much; pukes very easily, and sleeps much better. Con. Med.

12th. Continues better.

14th. Same report. Con. Med.

18th. Has become so much better that his cough attracts but little notice.

23d. Is nearly recovered. Con. Med.

30th. Convalescent. In this case there was certainly no reason to doubt the good effect of the medicine. The stomach in this case was more than ordinarily affected.

VIII. Benjamin Crowel—6 years—April 7, 1821. Has had cough three weeks—is puny. During kinks bleeds from nose, throat, and perhaps stomach. S. Acid. Pruss. gtt. xv. 4r. in die.

9th. No effect, or but very slight amendment.—Con. Med.

11th. Symptoms moderated—Hamorrhage less—slight Hæmoptysis—sleeps better and does not cough so much at night. Did not cough once last night, although he has been much harrassed at night, hitherto.

12th. Still has some Hæmoptysis: kinks less frequent since last report: on the whole the improvement is evident. Con. Med.

14th. Symptoms have increased in violence. S. gtt. xx. 4r.

16th. Kinks less frequent, but more severe. Hæmorrhage. Con. Med.

18th. Is rapidly mending again, but the Hæmorrhage still takes place during every kink. Con. Med.

23d. Hæmorrhage much diminished;—his mother thinks his cough is much better immediately after taking the drops. Con. Med.

30th. Is reported much better. He continued the use of the medicine, and became convalescent, although very slowly.

IX. Wm. Crowel—4 years—April 7th, 1821.—Has had cough three weeks—robust—pukes during kinks. S. Acid Pruss. gtt. xii. 4r. in die.

9th. Cough not quite so severe: slight Hæmorrhage: seized the phial and took a swallow of the medicine, apparently less than a tea-spoonful. His mother reports him to have been dizzy and light-headed after the accident. Con. Med.

11th. Continues about the same. Dyspnæa.

12th. No alteration.

14th. Same report. Con. Med.

16th. Dyspnæa increases.

18th. No improvement. Con. Med.

23d. Dyspnæa very troublesome;—appears like

acute Asthma. R. Subm. Hydr. gr. iii. Pulv. Antimonial gr. i. m. S. nocte.

30th. Has used the Prussick Acid, but very irregularly and without benefit;—has slowly mended. The convalescence in this case was very tardy, and the Dyspnæa continued several months.

X. Catherine Stapleton—aged 20—Ap. 7th, 1821. Has had cough four weeks, and considered it a common cold, for which she took Squill Pill with Tartrite of Antimony, and a variety of popular expectorants, without relief. For a week past the nature of the cough has been obvious, and the kinks manifest, and characteristick. S. Acid Pruss. gtt. xxv. 3r. in die.

11th. Medicine produces nausea;—vomited this morning. No alleviation of symptoms. Con. Med.

12th. No improvement. Con. Med.

14th. Took 50 drops of the medicine on going to bed—made her head ache, and felt very sick all night. Cough continues the same.

16th. Has taken no medicine since last report, but states her cough is rapidly leaving her. Omit med. The cough in this case soon left the patient, and it was impossible to say if the medicine produced an effect, or not.

XI. George Dickenson—3 years—April 7th, 1821. Has had cough three weeks—symptoms as usual. S. Acid. Pruss. gtt. xv. 3r. in die.

12th. No effect from medicine. S. gtt. xx. 3r. in die.

14th. Slight improvement. Con. Med.

16th. Same report. Con. Med.

18th. Has grown worse. S. gtt. xxv. 3r. in die.

23d. Same report. Omit. Med.

30th. This patient has been bled, and put upon a course of mercurials, and is recovering.

XII. Rebecca Andrews—2 years, 6 months—April 7th, 1821. Has been convalescent, but cough has returned as violently as ever: cough commenced eight weeks ago. Fell into the fire to day, and was severely burned in hand and arm. S. Ac. Pr. gtt. xv. 4r. in die.

12th. No alleviation. Burn doing well.

14th. Same report.

16th. Cough much relieved:—is rapidly recovering from the effects of the burn.

18th. Rapidly mending. Cough very slight. Con. Med.

23d. Nearly recovered. Omit. Med.

30th. Convalescent. There was good reason to believe that the Prussick Acid contributed to the healing of the ulcers, which were quite extensive.

XIII. Wm. H. Dann—8 months—Ap. 16th, 1821. Has had cough 5 weeks: healthy, robust:—has been growing worse for several days. S. Ac. Pr. gtt. iv. 3r. in die.

18th. Has been better ever since taking medicine; coughs less frequently, and pukes easier. S. gtt. vi. 3r. in die.

21st. Has been out of medicine since yesterday, and coughs worse. S. Med. ut antea.

23d. Has been growing better ever since resuming the medicine: general appearance very good.

30th. Convalescent. Although the medicine in this case appeared to produce benefit, yet it is proper to remark, that in cases, in which no medicine is given, a favourable crisis generally takes place, somewhere between the 5th and 7th week.

Robert Afflack—5 years—April 20th, 1821. Has had cough 2 weeks: kinks grow more severe. S. Ac. Pr. gtt. xx. 3r. in die.

22d. Medicine agrees very well: kinks have been less violent since taking it. This patient continued the medicine for ten days more, when the cough had nearly left him, and continued in a very slight degree, for the usual period of the complaint.

M'Cartey—3 weeks old—April 20, 1821. Was born in a room where several children were affected with Pertussis, and has had cough almost ever since it was born. At birth was very robust, and weighed 12 pounds. Kinks of Pertussis are well marked, and severe: vomits green or yellow bile. Dyspnæa, loss of appetite, retention of urine, and tumid state of whole abdomen. Has taken Calomel, Spt. Ether. Nitros, and had warm bath. S. Ac. Pr. gtt. ii. 3r. in die.

21st. Symptoms continuë. Cough increases.

22d. Same report.

23d. Died. Bowels very much distended: no examination. In this case the Acid had no effect;—the cough seemed to be the cause of the visceral disorder.

Jane Poor—5 years—April 14th, 1821. Was exposed to contagion of Pertussis, 2 weeks since; has had cough increasing for 3 days. This evening had a slight convulsion: face and limbs much swollen:—complains of pain in the head: cough frequent and suffocating: pulse small and frequent. Has had diarrhœa, which has now left her. S. pulv. Ipec. gr. x. Foveatur pectus et abdomen.

15th. Emetick operated well, and relieved the pain in the head. Cough continues: no stool. S. Ol. Ricin. ʒss. d'æta aquæa. R. Tart. Antimon. gr. iii Aquæ ʒi. m. hujus capiat gtt. xxv. omn. hora.

16th. Skin cool: appetite returning: pulse moderate: kinks grow worse: Medicine has produced free diaphoresis—let it be omitted. S. Acid. Pruss. dilut. gtt. x. 4r. in die.

18th. Has no fever: no effect from the Acid.—Omitt. R. Mistur. Phosphat. Ferri ʒiv. S. ʒi. 4r. in die. The extreme feebleness of the patient requires tonick medicines.

22d. Symptoms continue: took a Calomel powder last night, and is better to-day. Is carried out daily. Let her take Cantharides till strangury is produced. Has complained of pain in the side for two days.—Applic. Emplast. picis abietis, lateri.

25th. Has been affected with strangury since yesterday;—no abatement of cough. Omitt. Tr. Mel. Ves. Con. Mistur. Phosp. Ferri. The cough continued in this patient for six weeks longer, inducing a very alarming degree of weakness, but she finally recovered on being carried fifteen miles into the interior.

April 2d, 1822.

ADDITIONAL REMARKS.

THE foregoing dissertation was honoured by the award of the Boylston premium of 1822, since which time the disease has been once epidemic in this place, viz. in the Spring of the past year (1823.) During this last epidemic I attempted the use of no new (reputed) specific and employed no practice which has not been detailed in the preceeding pages, except the application of leeches to the head after the manner recommended by Dr. John Webster, in the 286 No. of the London Med. and Phys. Journal, Dec. 1822. Dr. W. believes that "congestion in the head," whether primary or secondary, is the most important symptom in the disease, on the relief of which, a mitigation of the other symptoms will necessarily follow. Besides Dr. W's assurances of the success of his practice, it appears plausible from the analagous fact that in those cases where there is bleeding from the nose, the disease is generally milder than in those cases where the vessels of the head appear crowded and no such evacuation takes place. The first case in which I tried it was a very robust infant of 10 months, in the third week of the disease. The kinks were very violent, and daily brought on convulsions—leeches were applied three times, not less than five, nor more than seven each time, and performed extremely well,

the bleeding being afterwards encouraged by washing with warm water. The event totally disappointed me; the disorder continued with unabated severity for two weeks, and almost immediately yielded on the child's removal into the country. In three other cases of children less than one year old, in which a determination of blood to the head appeared to demand it, the same practice was tried, with some apparent benefit, but by no means confirming the exalted encomiums of Dr. Webster. So rational a practice however, ought not to be given up from the fact of 3 or 4 failures, but deserves much more extensive trials.

From my own experience in Pertussis I am induced to adopt the following conclusions, in which my confidence, at present, is very strong; but it would discover a want of candour which I do not feel, not to admit that future observation may not confirm them.

1. The Whooping Cough is not often in itself a fatal disease. When it becomes so, it is from being combined with other complaints, especially inflammatory affections of the respiratory organs, and the diseases usually occurring at the period of dentition. It is a considerable proof of the mildness of the disease, that so many comparatively inert articles should be reputed specifics in its cure.

2. At the access of the disease, perhaps during the first week, the healthy functions are somewhat deranged, but after that period are performed nearly as usual.

3. That the complaint is one of specific duration.

4. That the most successful mode of treatment is that which is founded upon principles of general pathology, without a minute attention to the specific disease. By which I mean, that if the dangerous symptoms *not peculiar* to Pertussis be successfully combated, the specific disease will require but little attention.

5. That a change of air, particularly removal from town to country, has far more effect than any other remedy, and becomes indispensable in many cases where from any causes the patient is much enfeebled. It is proper to add, that removal does not merit this high commendation if undertaken during the first fortnight, before the characteristic symptoms of the complaint are clearly manifested.

Salem, February, 1824.

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